REMARKS

Applicant thanks the Examiner for the very thorough consideration given the present application. In the Office Action, claims 1-3, 5, 6, 12-16 and 19-23 have been rejected. In this Amendment, claims 1, 12, 14, 19 and 21 are amended and claims 2 and 3 are canceled. Claims 7-9, 17 and 18 are withdrawn. Currently, claims 1, 5-9 and 12-23 are pending. Claims 1, 12, 19 and 21 are independent claims. No new matter has been introduced by this Amendment. Reexamination and reconsideration of the pending claims are respectfully requested.

In the Office Action, claims 1-3, 5-6, 12-16 and 21 are rejected under 35 USC §103(a) as being unpatentable over Kawaguchi (US 6,052,171, hereinafter "Kawaguchi") in view of Kim et al. (KR 10-1999-0024956, hereinafter "Kim"). Claims 19-20 and 22-23 are rejected under 35 USC §103(a) as being unpatentable over Kawaguchi in view of Kim, further in view of Song et al. (US 2002/0008794, hereinafter "Song").

Claim 1 is allowable over Kawaguchi and Kim in that claim 1, as amended, recites the following features, for example, "a picture display part having liquid crystal cells at each intersection of first ~ (n)th gate lines and first ~ (m)th data lines; first ~ (m)th data pads extended from the first ~ (m)th data lines in an outer area of the picture display part; first ~ (n)th gate pads extended from the first ~ (n)th gate lines in the outer area of the picture display part; a plurality of first line-on glass signal pads formed just beside the first data pad and a plurality of second line-on glass signal pads formed just beside the first gate pad, the first and second line-on glass signals pads are in one corner of the outer area of the picture display part, wherein the one corner of the outer area of the picture display part is defined between the first gate pad and the first data pad; a plurality of line-on glass type signal lines connecting the first and second line-on glass signal pads in the corner of the outer area of the picture display part for applying gate power voltage signals and gate control signals to gate drive ICs in order to drive gate signal lines of the picture display part; a plurality of first dummy pads between the first line-on glass type signal pads and a plurality of second dummy pads between the second line-on glass type signal pads; and a plurality of dummy lines connecting the first and second dummy pads in the one corner of

the outer area of the picture display part, wherein the plurality of first and second dummy lines are formed between the line-on glass type signal lines for applying a common voltage as a reference voltage to drive the liquid crystal cells with at least one layer of insulating film therebetween, wherein the insulating film covers the plurality of line-on glass type signal lines and the dummy lines are formed on the layer of insulating film."

The Office Action states that all features of claim 1 except the claimed feature of "the insulating layer" are disclosed in Kawaguchi, citing Fig. 1A and col. 4, lines 10-20 and col. 6, lines 60-65 of Kawaguchi. However, Fig. 1A of Kawaguchi shows a side portion of a peripheral part of a liquid crystal panel. That is, the drawn part is corresponding to source TCP 24 (shown in Fig. 1B of Kawaguchi). The relationship between elements of liquid crystal panel 10 and elements of TCP 24 is as following (see line 1 of Col. 4 ~ line 4 of Col.5 and Figs. 1A~2 of Kawaguchi).

The output lines 21 as a second wiring for source lines are interconnection lines which are formed near the center of one side of the TCP 24 and which serve for outputting a signal voltage from the liquid-crystal driver IC 20 to the source lines 11 of the liquid crystal panel 10. Further, an opposite-voltage use line 22 as a fourth wiring of the TCP 24 is an interconnection line which is formed on both sides of the output lines 21 as the second wiring for source lines, and which serves to electrically interconnect an opposite-voltage use line 32 as a first wiring of the circuit board 30 and the opposite-voltage use line 12 of the liquid crystal panel 10. The second input lines 25 as a third wiring are interconnection lines for inputting a signal necessary for the drive of the liquid-crystal driver IC 20, one end of the second input lines 25 as the third wiring being connected to the connection lines 13 of the liquid crystal panel 10.

Fig. 1A

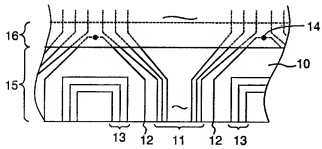
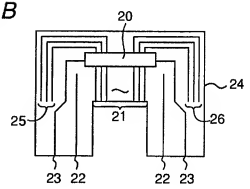


Fig. 1B



Figs. 1A and 1B of Kawaguchi

As stated above, Kawaguchi does not explicitly or inherently disclose that "one corner of the outer area of the picture display part which is defined between the first gate pad and the first data pad," as recited in claim 1.

Therefore, Kawaguchi does not teach or suggest the combination of features including, the first and second line-on glass signal pads being in one corner of the outer area of the picture display part, the one corner of the outer area of the picture display part being defined between the first gate pad and the first data pad, as recited in claim 1.

Further, Kawaguchi fails to disclose the features of "wherein the plurality of first and second dummy lines are formed between the line-on glass type signal lines with at least one layer of insulating film therebetween and wherein the insulating film covers the plurality of line-on glass type signal lines and the dummy lines are formed on the layer of insulating film," as recited in claim 1.

Further, Kim shows a side portion of a peripheral part of a liquid crystal panel. Kim does not teach or suggest the combination of features including, the first and second line-on glass signal pads being in one corner of the outer area of the picture display part, the one corner of the outer area of the picture display part being defined between the first gate pad and the first data pad, as recited in claim 1.

The Office Action states that Kim teaches that the insulating film covers the plurality of

the line-on glass type signal lines and the dummy line 700 is formed on the layer of the insulating film 640, as shown in Figs. 1, 3-4 and 6, paragraph 22 of Kim in Office Action. However, Figs. 4 and 6, which show a profile of layers of Kim, substantially show different features from the features of claim 1.

For example, Fig. 4 (the figure on the left) of Kim shows that both of the main line 621 (formed of data signal line) and the ground line 700 are covered by the insulating layer 640. In this case, Fig. 4 of Kim does not disclose the features of "wherein the plurality of first and second dummy lines are formed between the line-on glass type signal lines with at least one layer of insulating film therebetween and wherein the insulating film covers the plurality of line-on glass type signal lines and the dummy lines are formed on the layer of insulating film," as recited in claim 1.

Fig. 6 (the figure on the right) of Kim shows that the ground line 700 is formed as a double layer and the source/drain electrode 630 is formed on the substrate 200. In this case, the ground line 700 is fully overlapped with the source/drain electrode 630. It is inevitable to cause parasitic capacitance in the overlapped area between the ground line 700 and the source/drain electrode 630 as a structure of Fig. 6. Fig. 6 of Kim rather fails to teach the feature of "wherein the plurality of first and second dummy lines are formed between the line-on glass type signal lines with at least one layer of insulating film therebetween and wherein the insulating film covers the plurality of line-on glass type signal lines and the dummy lines are formed on the layer of insulating film," as recited in claim 1, due to "the overlapped portion" between the source/drain electrode 630 and the ground line 700 in Kim.

Fig. 4 of Kim

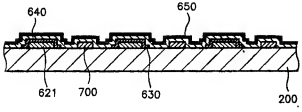
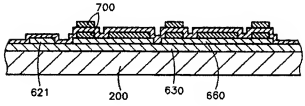


Fig. 6 of Kim



Therefore, neither Kawaguchi nor Kim discloses the feature of "wherein the plurality of first and second dummy lines are formed between the line-on glass type signal lines with at least one layer of insulating film therebetween and wherein the insulating film covers the plurality of line-on glass type signal lines and the dummy lines are formed on the layer of insulating film," as recited in claim 1.

As stated above, none of the cited references, singly or in combination, teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 1, and each of the claims depending therefrom, are allowable over the cited references.

For the similar reasons as above, claim 12 is allowable over Kawaguchi and Kim in that claim 12, as amended, recites the features, for example, "forming first ~ (n)th gate lines in a picture display part and a plurality of line-on glass signal lines in one corner of an outer area of the picture display part on a substrate for applying gate power voltage signals and gate control signals to gate drive ICs in order to drive gate signal lines of the picture display part; forming at least one layer of insulating film to cover the line-on glass type signal lines; forming first ~ (m)th data lines to cross the first ~ (n)th gate lines in a picture display part and a dummy line that is located between the line-on glass signal lines on the insulating film for applying a common voltage as a reference voltage; and forming first ~ (m)th data pads extended from the first ~ (m)th data lines and first ~ (n)th gate pads extended from the first ~ (n)th gate lines in the outer of the picture display part and forming first and second line-on glass signal pads just beside the first data pad and first gate pad, respectively and first dummy pads between the first line-on glass

signal pads and second dummy pads between the second line-on glass pads, respectively, in one corner of the outer area of the picture display part, wherein the one corner of the outer area of the picture display part is defined between the first gate pad and the first data pad, wherein each of the plurality of the line-on glass signal lines is connected between the first and the second line-on glass signal pads in the one corner of the outer area of the picture display part."

For the similar reasons as stated above, none of the cited references, singly or in combination, teach or suggest at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 12, and each of the claims depending therefrom, are allowable over the cited references.

Further, Song fails to cure the deficiencies of Kawaguchi and Kim.

Claim 19 is allowable over Kawaguchi, Kim and Song in that claim 19, as amended, recites the features, for example, "a picture display part with a matrix of liquid crystal cells having a plurality of gate lines and date lines to cross each other; a gate pad and a data pad to drive the gate lines and data lines, respectively, the gate pad and the data pad are formed in an outer area of the picture display part of a lower substrate; a plurality of line-on glass type signal lines located in one corner of the outer area of the picture display part of the lower substrate for applying drive signals to drive the liquid crystal cells, wherein the one corner of the outer area of the picture display part is corresponding to between the gate pad and the data pad; an insulating layer covering the line-on glass type signal lines; and a plurality of common voltage signal lines for applying a common voltage signal and being formed between line-on glass type signal lines, on the insulating layer, wherein at least one of the plurality of common voltage lines applies the common voltage signal through a silver(Ag) dot to a common electrode that is formed on an entire surface of an upper substrate."

Therefore, none of the cited references including Kawaguchi, Kim and Song, singly or in combination, teach or suggest at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 19 and claim 20, which depends therefrom, are allowable over the cited references.

Claim 21 is allowable over Kawaguchi and Kim that claim 21, as amended, recites the feature, for example, "a picture display part with a matrix of liquid crystal cells having a plurality of gate lines and date lines to cross each other; a gate pad and a data pad to drive the gate lines and data lines, respectively, the gate pad and the data pad are formed in an outer area of the picture display part of a lower substrate; a plurality of line-on glass type signal lines located in one corner of the outer area of the picture display part of the lower substrate for applying drive signals to drive the liquid crystal cells, wherein the one corner is defined between the gate pad and the data pad; an insulating layer covering the line-on glass type signals and the gate lines; and a plurality of dummy lines that formed between the line-on glass type signal lines on the insulating layer, wherein the dummy lines and the data lines on the insulating layer and the dummy lines are a common voltage line or a ground voltage line."

As similarly stated above, none of the cited references including Kawaguchi and Kim, singly or in combination, teach or suggest at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 21, and claims depending therefrom, are allowable over the cited references.

Accordingly, it is respectfully submitted amended independent claims 1, 12, 19 and 21, and each of the claims depending therefrom, are allowable. Applicant believes the foregoing remarks establish that the application in condition for allowance and early, favorable action is respectfully solicited.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Jun S. Ha, Registration No. 58,508, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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